

ABSTRACT

The present invention disclosed herein is used for replacing or installing a new aircraft cockpit door system in airplanes, wherein such a composite exist as part of the original aircraft structure. In manufacturing a typical cockpit door panel of approximately 0.325" in thickness, the composition generally comprises a number of independent layers ultra high molecular weight ("U.H.M.W.") fibers that are of a very dense and treated with phenolic or epoxy resins. In the present invention, three layers with different weaves and resins are used to form a final combination. The first layer section is relatively hard and is constructed from a phenolic resin with a tight fabric weave. The first layer will have the function to deform any pointed projectile to a blunted object. The second layer group is constructed from a relatively softer epoxy resin with a looser fabric weave. This layer functions to form a "delamination" pocket for encouraging the blunted projectile to move "sideways" and interlaminarily having energy absorption properties. The third layer section is relatively hard and is constructed from a phenolic resin with a tight fabric weave. With the projectile having reduced velocity, the third layer functions to captures blunted projectile. This three-layer composite results in an extremely fire resistant, strong, lightweight, yet very hard material.